



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF
REGISTRATION
AND CHEMICAL SAFETY

MEMORANDUM:

From: Kevin Sweeney, Senior Entomologist

A handwritten signature in black ink, appearing to read "Kevin Sweeney", is written over the "From:" line and extends into the "Date:" line.

Date: July 16, 2013

Subject: PRODUCT PERFORMANCE DATA EVALUATION RECORD

DP barcode: 412495

Decision no.: 477984

Submission no: 931831

Action code: R340

Product Name: Black Flag Home Insect Control Concentrate

EPA Reg. No or File Symbol: 9688-302

Formulation Type: Liquid Insecticide Concentrate

Ingredients statement from the label with PC codes included: 0.32% deltamethrin (pc code: 097805)

Application rate(s) of product: 16 oz makes 2 gallons of finished dilution. There are no directions for the rate per 1000 square feet.

Use pattern: indoor and outdoor general surface spray.

OCSPP Guideline: 810.3500.

I. Action Requested: Review three studies submitted in support of new residual control label claims that include a 12 month control claim for ants and German cockroaches on non-porous surfaces.

II. Background: Registrant referred to recent acceptance of these data to support a claim on EPA Reg. No. 9688-301.

III. Study Reviews:

Primary reviews of these studies are attached.

MRID 488844-01. Snell, E. et.al. Efficacy of Black Flag Extreme Home Insect Control (0.02% Deltamethrin) and Black Flag Extreme Home Insect Control Concentrate (0.32% Deltamethrin) When Applied as Residual Applications to Ceramic Tile for the Control of German Cockroaches (*Blattella germanica*). June, 2012.

Conclusion: The study is acceptable. The study supports a 12 month claim against German cockroaches on non-porous surfaces only. The finished solution was 0.02% deltamethrin, which was applied the rate of at 1 gal per 1000 square feet (extrapolated from treatment of tiles).

MRID 488844-04. Snell, E. et.al. Efficacy of Black Flag Extreme Home Insect Control (0.02% Deltamethrin) and Black Flag Extreme Home Insect Control Concentrate (0.32% Deltamethrin) When Applied as Residual Applications to Ceramic Tile for the Control of Argentine Ants (*Linepithema humile*). June, 2012.

Conclusion: The study is acceptable. The study supports a 12 month claim against Argentine ant on non-porous surfaces. The finished solution was 0.02% deltamethrin, which was applied at the rate of 1 gal per 1000 square feet (extrapolated from tile treatment in the experiment).

MRID 488844-05. Snell, E. et.al. Efficacy of Black Flag Extreme Home Insect Control (0.02% Deltamethrin) and Black Flag Extreme Home Insect Control Concentrate (0.32% Deltamethrin) When Applied as Residual Applications to Ceramic Tile for the Control of Pharaoh Ants (*Monomorium pharaonis*). June, 2012.

Conclusion: The study is acceptable. The study supports a 12 month claim against Pharaoh ant on non-porous surfaces. The finished solution was 0.02% deltamethrin, which was applied at the rate of 1 gal per 1000 square feet (extrapolated from tile treatment in the experiment).

IV. Entomologist's Recommendations:

1. The submitted data are acceptable and support the following label claims:

- 73. Controls German cockroaches and ants ** for up to 12 months [52 weeks] [1 whole year].
- 74. Kills German cockroaches and ants ** for up to 12 months [52 weeks] [1 whole year].
- 75. Up to 12 months controls for German cockroaches and Ants.**
- 76. Up to 12 month[†] control"

2. The registrant should add the following information to the label:

- When 8 oz of this product are mixed with 1 gallon of water the resulting solution contains 0.02% deltamethrin.
- Apply at the rate of 1 gallon of finished solution (0.02% deltamethrin) per 1000 square feet as directed by the label.

TASK 2 DATA EVALUATION RECORD

STUDY TYPE: Product Performance

MRID 488844-01. Snell, E. et.al. Efficacy of Black Flag Extreme Home Insect Control (0.02% Deltamethrin) and Black Flag Extreme Home Insect Control Concentrate (0.32% Deltamethrin) When Applied as Residual Applications to Ceramic Tile for the Control of German Cockroaches (*Blattella germanica*). June, 2012.

810.3500: Premises Treatments

Product Name: Black Flag Home Insect Control Concentrate

EPA Reg. No. or File Symbol: 9688-302

Decision number: 477984

DP number: 412495

Prepared for
Registration Division (7505)
Office of Pesticide Programs
U.S. Environmental Protection Agency
Washington, DC 20460

Prepared by
Summitec Corporation
Task Order No.: 2-129

Primary Reviewer:
Robert H. Ross, M.S.

Secondary Reviewers:
Gene Burgess, Ph.D.

Robert H. Ross, M.S. Program Manager

Quality Assurance:
Angela M. Edmonds, B.S.

Signature: Robert H. Ross AE
Date: 07/06/2013
Signature: Gene Burgess AE
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Signature: Angela M. Edmonds
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Disclaimer

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Summitec Corp. for the U.S. Environmental Protection Agency under Contract No. EP-W-11-014

DATA EVALUATION RECORD

[EPA Primary Reviewer's Name]

STUDY TYPE:	810.3500: Premises Treatments
MRID:	488844-01. Snell, E. et.al. Efficacy of Black Flag Extreme Home Insect Control (0.02% Deltamethrin) and Black Flag Extreme Home Insect Control Concentrate (0.32% Deltamethrin) When Applied as Residual Applications to Ceramic Tile for the Control of German Cockroaches (<i>Blattella germanica</i>). June, 2012.
DP BARCODE:	412495
DECISION NO:	477984
SUBMISSION NO:	931831
SPONSOR:	Charles A. Duckworth United Industries Corp.
TESTING FACILITY:	Snell Scientifics, LLC 188 Vega Road Meansville, GA 30256
STUDY DIRECTOR:	Todd Smith Snell Scientifics, LLC
SUBMITTER:	William Metzger United Industries Corp. Company Agent
STUDY COMPLETED:	12/06/2012
CONFIDENTIALITY CLAIMS:	None
GOOD LABORATORY PRACTICE:	This study was NOT conducted in compliance with Good Laboratory Practice Standards as described by EPA (40 CFR Parts 160 and 792), and was never intended for that purpose.

TEST MATERIAL:	PRODUCT NAME: Black Flag Home Insect Control Concentrate EPA REGISTRATION NUMBER OR FILE SYMBOL: 9688-302 ACTIVE INGREDIENT NAME: Deltamethrin CHEMICAL NAME: Not given A.I. %: 0.32% PC CODE: 097805 CAS NO.: Not given FORMULATION TYPE: Spray PRODUCT APPLICATION RATE(S) g/m ² : 8 fl oz/gal water or equivalent; spray surface until moist but not to point of runoff. ACTIVE INGREDIENT APPLICATION RATE(S)g/m ² : Not given
PROPOSED LABEL MARKETING CLAIMS:	Kills cockroaches

STUDY REVIEW

Purpose:

To determine the efficacy of Black Flag Extreme Home Insect Control (0.02% Deltamethrin) and Black Flag Extreme Home Insect Control Concentrate (0.32% Deltamethrin) when applied as residual applications to ceramic tile for the control of German cockroaches (*Blattella germanica*).

MATERIALS AND METHODS

Test Location Snell Scientifics, LLC laboratory

Test Material(s):

1. Control Untreated
2. Black Flag Extreme Home Insect Control (0.02% Deltamethrin), #11084 BX1 63326, EPA Est #82446-TN-1 / #11623-GA-1 / #58996-MO-1, Production Date: March 25, 2011 (Snell Code: 033011-2-B-BLA)
3. 0.02% Black Flag Extreme Home Insect Control Concentrate (0.32% Deltamethrin), #11083 BX1 63857, EPA Est #82446-TN-1 / #11623-GA-1 / #58996-MO-1, March 24, 2011 (Snell Code: 033011-1-B-BLA)
4. Ortho® Home Defense Perimeter & Indoor Insect Killer (0.05% Bifenthrin), Lot # I301163/4, EPA Reg # 239-2663, EPA Est. # 239-1A-3¹/ 58996-MO-1^A

Test materials 2 and 3 are of interest as both test materials have an a.i .concentration of 0.02% which is the diluted use concentration of the labeled product.

Test Species Name, Life Stage, Sex and Age:

Test System	Stage/Age	Source
German Cockroaches (<i>Blattella germanica</i>)	80% mixed nymphs, 10% adult males, 10% adult non-gravid females	Taken from a laboratory reared colony that was originally purchased.

Describe test containers, chambers and/or apparatus (include site description and location) and how experiment was conducted: Ceramic tiles (4" X 4") were the substrate. After test material application, the substrates were aged for 1, 3, 6, 9, and 12 months under ambient laboratory conditions.

List the treatments including untreated control: 0.02% deltamethrin applied at 1 gal/1000 ft² [1 second spray (4 mL)]

Number of replicates per treatment: 5

Number of individuals per replicate: 10

Length of exposure to treatment (time in seconds, minutes or hours): After an initial 5 minute exposure, the cockroaches for the 1 month substrate test were placed on treated surfaces for 5 minutes at 1 hour and at 4 hours and then moved to untreated surfaces for the rest of the study. The 3 to 12 month cockroaches were exposed for 6 hours and then transferred to clean test arenas.

Were tested specimens transferred to clean containers? Yes

Experimental conditions (state relative humidity, temperature, and photoperiod): 76-77 °F and 54-57% RH

Data or endpoints collected/recorded: Alive, knocked down and dead at 30 minutes; 1, 4, and 24 hours; and daily as needed

Data analysis: Average % dead

RESULTS

Tables 1-5 show that the 0.02% deltamethrin concentration gave acceptable ($\geq 90\%$) results on all aged substrates. Control morality was acceptable. Raw data were presented.

Table 1.

German Cockroach (<i>Blattella germanica</i>)							
Average % Dead - 1 Month							
Test Substance / Mix Rate:	Pre-trt	30 min	1 hr	4 hr	24 hr	2 DAT	3 DAT
Control - Untreated	0%	0%	0%	0%	2%	2%	2%
Black Flag Extreme Insect Cntrl	0%	0%	36%	74%	62%	98%	100%
0.02% Black Flag Extreme Insect Conc.	0%	0%	40%	66%	60%	98%	100%
Ortho Home Defense Insect Killer	0%	0%	0%	56%	54%	92%	96%

Table 2.

German Cockroach (<i>Blattella germanica</i>)							
Average % Dead - 3 Month							
Test Substance / Mix Rate:	Pre-trt	30 min	1 hr	4 hr	24 hr	2 DAT	3 DAT
Control - Untreated	0%	0%	0%	0%	2%	2%	4%
Black Flag Extreme Insect Cntrl	0%	0%	6%	26%	50%	80%	100%
0.02% Black Flag Extreme Insect Conc.	0%	0%	8%	30%	38%	84%	100%
Ortho Home Defense Insect Killer	0%	0%	0%	20%	42%	54%	80%

Table 3.

German Cockroach (<i>Blattella germanica</i>)							
Average % Dead - 6 Month							
Test Substance / Mix Rate:	Pre-trt	30 min	1 hr	4 hr	24 hr	2 DAT	3 DAT
Control - Untreated	0%	0%	0%	0%	6%	8%	10%
Black Flag Extreme Insect Cntrl	0%	0%	0%	44%	66%	82%	90%
0.02% Black Flag Extreme Insect Conc.	0%	0%	0%	20%	60%	82%	94%
Ortho Home Defense Insect Killer	0%	0%	0%	28%	30%	46%	56%

Table 4.

German Cockroach (<i>Blattella germanica</i>)									
Average % Dead - 9 Month									
Test Substance / Mix Rate:	Pre-trt	30 min	1 hr	4 hr	24 hr	2 DAT	3 DAT	4 DAT	5 DAT
Control - Untreated	0%	0%	0%	0%	2%	4%	6%	6%	6%
Black Flag Extreme Insect Cntrl	0%	0%	0%	6%	10%	42%	96%	98%	100%
0.02% Black Flag Extreme Insect Conc.	0%	0%	0%	8%	18%	44%	92%	100%	100%
Ortho Home Defense Insect Killer	0%	0%	0%	0%	28%	58%	70%	72%	72%

Table 5.

German Cockroach (<i>Blattella germanica</i>)									
Average % Dead - 12 Month									
Test Substance / Mix Rate:	Pre-trt	30 min	1 hr	4 hr	24 hr	2 DAT	3 DAT	4 DAT	5 DAT
Control - Untreated	0%	0%	0%	0%	8%	8%	11%	12%	12%
Black Flag Extreme Insect Cntrl	0%	26%	48%	60%	68%	72%	84%	94%	100%
0.02% Black Flag Extreme Insect Conc.	0%	24%	46%	42%	68%	64%	78%	96%	100%
Ortho Home Defense Insect Killer	0%	8%	30%	44%	68%	76%	90%	94%	96%

Study Author's Conclusions

The results of the study prove that residual applications of Black Flag Extreme Insect Control (RTU) and 0.02% Black Flag Extreme Insect Concentrate provide similar results, and that both have the ability to provide high levels of German cockroach (*Blattella germanica*) mortality following applications to non-porous surfaces (ceramic tile) that are aged for at least 12 months.

Reviewer's Conclusions

This was an acceptable study for the 1 month substrate and for the 3 to 12 months substrates if a continuous exposure of 6 hours is considered acceptable.

Reviewer's Recommendations

The study supports adding residual control on non-porous surfaces against German cockroaches to the label for up to 1 month and also up to 12 months if a continuous exposure of 6 hours is considered acceptable.

TASK 2 DATA EVALUATION RECORD

STUDY TYPE: Product Performance

MRID 488844-04. Snell, E. et.al. Efficacy of Black Flag Extreme Home Insect Control (0.02% Deltamethrin) and Black Flag Extreme Home Insect Control Concentrate (0.32% Deltamethrin) When Applied as Residual Applications to Ceramic Tile for the Control of Argentine Ants (*Linepithema humile*). June, 2012.

810.3500: Premises Treatments

Product Name: Black Flag Home Insect Control Concentrate

EPA Reg. No. or File Symbol: 9688-302

Decision number: 477984

DP number: 412495

Prepared for
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Office of Pesticide Programs
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Prepared by
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Task Order No.: 2-129

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Secondary Reviewers:
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Robert H. Ross, M.S. Program Manager

Quality Assurance:
Angela M. Edmonds, B.S.

Signature: Robert H. Ross ^{AE}

Date: 07/06/2013

Signature: Gene Burgess ^{AE}

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MRID:	488844-04. Snell, E. et.al. Efficacy of Black Flag Extreme Home Insect Control (0.02% Deltamethrin) and Black Flag Extreme Home Insect Control Concentrate (0.32% Deltamethrin) When Applied as Residual Applications to Ceramic Tile for the Control of Argentine Ants (<i>Linepithema humile</i>). June, 2012.
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SPONSOR:	Charles A. Duckworth United Industries Corp.
TESTING FACILITY:	Snell Scientifics, LLC 188 Vega Road Meansville, GA 30256
STUDY DIRECTOR:	Todd Smith Snell Scientifics, LLC
SUBMITTER:	William Metzger United Industries Corp. Company Agent
STUDY COMPLETED:	03/06/2012
CONFIDENTIALITY CLAIMS:	None
GOOD LABORATORY PRACTICE:	This study was <u>NOT</u> conducted in compliance with Good Laboratory Practice Standards as described by EPA (40 CFR Parts 160 and 792), and was never intended for that purpose.

TEST MATERIAL:	PRODUCT NAME: Black Flag Home Insect Control Concentrate EPA REGISTRATION NUMBER OR FILE SYMBOL: 9688-302 ACTIVE INGREDIENT NAME: Deltamethrin CHEMICAL NAME: Not given A.I. %: 0.32% PC CODE: 097805 CAS NO.: Not given FORMULATION TYPE: Spray PRODUCT APPLICATION RATE(S) g/m ² : 8 fl oz/gal water or equivalent; spray surface until moist but not to point of runoff. ACTIVE INGREDIENT APPLICATION RATE(S)g/m ² : Not given
PROPOSED LABEL MARKETING CLAIMS:	Kills ants

STUDY REVIEW

Purpose:

To determine the efficacy of Black Flag Extreme Home Insect Control (0.02% Deltamethrin) and 0.02% Black Flag Extreme Home Insect Control Concentrate (0.02% Deltamethrin) when applied as residual applications to ceramic tile for the control of Argentine ants (*Linepithema humile*).

MATERIALS AND METHODS

Test Location Snell Scientifics, LLC laboratory

Test Material(s):

1. Control -- Untreated
2. Black Flag Extreme Home Insect Control (0.02% Deltamethrin), #11084 BX1 63326, EPA Est #82446-TN-1 / #11623-GA-1 / #58996-MO-1, Production Date: March 25, 2011 (Snell Code: 033011-2-B-BLA)
3. 0.02% Black Flag Extreme Home Insect Control Concentrate (0.32% Deltamethrin), #11083 BX1 63857, EPA Est #82446-TN-1 / #11623-GA-1 / #58996-MO-1, March 24, 2011 (Snell Code: 033011-1-B-BLA)
4. Ortho® Home Defense Perimeter & Indoor Insect Killer (0.05% Bifenthrin), Lot # 1301163/4, EPA Reg # 239-2663, EPA Est. # 239-1A-3¹ / 58996-MO-1^A

Test materials 2 and 3 are of interest as both test materials have an a.i .concentration of 0.02% which is the diluted use concentration of the labeled product.

Test Species Name, Life Stage, Sex and Age:

Test System	Strain	Stage/Age	Source
Argentine Ants (<i>Linepithema humile</i>)	Field Strain	Workers	Taken from a laboratory acclimated colony that was originally field collected

Describe test containers, chambers and/or apparatus (include site description and location) and how experiment was conducted: Ceramic tiles (4" X 4") were the substrate. After test material application, the substrates were aged for 3, 6, 9, and 12 months under ambient laboratory conditions.

List the treatments including untreated control: 0.02% deltamethrin applied at 1 gal/1000 ft² [1 second spray (4mL)].

Number of replicates per treatment: 5

Number of individuals per replicate: 10

Length of exposure to treatment (time in seconds, minutes or hours):. The 3 to 12 month ants were exposed for 6 hours and then transferred to clean test arenas.

Were tested specimens transferred to clean containers? Yes

Experimental conditions (state relative humidity, temperature, and photoperiod): 76 °F and 53% RH

Data or endpoints collected/recorded: Alive, knocked down and dead at 30 minutes; 1, 4, and 24 hours

Data analysis: Average % dead

RESULTS

Tables 1-4 show that the 0.02% deltamethrin concentration gave excellent results on all aged substrates. Control morality was acceptable. Raw data were presented.

Table 1.

Argentine Ants (<i>Linepithema humile</i>)					
Average % Dead - 3 Months					
Test Substance / Mix Rate:	Pre-trt	30 min	1 hr	4 hr	24 hr
Control - Untreated	0%	0%	0%	0%	10%
Black Flag Extreme Insect Cntrl	0%	0%	100%	100%	100%
0.02% Black Flag Extreme Insect Conc.	0%	0%	98%	100%	100%
Ortho Home Defense Insect Killer	0%	0%	100%	100%	100%

Table 2.

Argentine Ants (<i>Linepithema humile</i>)					
Average % Dead - 6 Months					
Test Substance / Mix Rate:	Pre-trt	30 min	1 hr	4 hr	24 hr
Control - Untreated	0%	0%	0%	2%	10%
Black Flag Extreme Insect Cntrl	0%	90%	100%	100%	100%
0.02% Black Flag Extreme Insect Conc.	0%	88%	94%	96%	100%
Ortho Home Defense Insect Killer	0%	86%	100%	100%	100%

Table 3.

Argentine Ants (<i>Linepithema humile</i>)					
Average % Dead - 9 Months					
Test Substance / Mix Rate:	Pre-trt	30 min	1 hr	4 hr	24 hr
Control - Untreated	0%	0%	0%	0%	8%
Black Flag Extreme Insect Cntrl	0%	84%	98%	100%	100%
0.02% Black Flag Extreme Insect Conc.	0%	46%	72%	90%	100%
Ortho Home Defense Insect Killer	0%	44%	66%	88%	100%

Table 4.

Argentine Ants (<i>Linepithema humile</i>)					
Average % Dead - 12 Months					
Test Substance / Mix Rate:	Pre-trt	30 min	1 hr	4 hr	24 hr
Control - Untreated	0%	0%	0%	0%	12%
Black Flag Extreme Insect Cntrl	0%	66%	82%	100%	100%
0.02% Black Flag Extreme Insect Conc.	0%	54%	60%	94%	100%
Ortho Home Defense Insect Killer	0%	52%	68%	86%	98%

Study Author's Conclusions

The results of the study prove that residual applications of Black Flag Extreme Insect Control (RTU) and 0.02% Black Flag Extreme Insect Concentrate provide similar results, and that both have the ability to provide high levels of Argentine ant (*Linepithema humile*) mortality following applications to non-porous surfaces (ceramic tile) that are aged for at least 12 months.

Reviewer's Conclusions

This is an acceptable study if a continuous exposure of 6 hours is considered acceptable.

Reviewer's Recommendations

The study supports adding residual control up to 12 months on non-porous surfaces against Argentine ants to the label if a continuous exposure of 6 hours is considered acceptable.

TASK 2 DATA EVALUATION RECORD

STUDY TYPE: Product Performance

MRID 488844-05. Snell, E. et.al. Efficacy of Black Flag Extreme Home Insect Control (0.02% Deltamethrin) and Black Flag Extreme Home Insect Control Concentrate (0.32% Deltamethrin) When Applied as Residual Applications to Ceramic Tile for the Control of Pharaoh Ants (*Monomorium pharaonis*). June, 2012.

810.3500: Premises Treatments

Product Name: Black Flag Home Insect Control Concentrate
EPA Reg. No. or File Symbol: 9688-302
Decision number: 477984
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SPONSOR:	Charles A. Duckworth United Industries Corp.
TESTING FACILITY:	Snell Scientifics, LLC 188 Vega Road Meansville, GA 30256
STUDY DIRECTOR:	Todd Smith Snell Scientifics, LLC
SUBMITTER:	William Metzger United Industries Corp. Company Agent
STUDY COMPLETED:	02/06/2012
CONFIDENTIALITY CLAIMS:	None
GOOD LABORATORY PRACTICE:	This study was <u>NOT</u> conducted in compliance with Good Laboratory Practice Standards as described by EPA (40 CFR Parts 160 and 792), and was never intended for that purpose.

TEST MATERIAL:	PRODUCT NAME: Black Flag Home Insect Control Concentrate EPA REGISTRATION NUMBER OR FILE SYMBOL: 9688-302 ACTIVE INGREDIENT NAME: Deltamethrin CHEMICAL NAME: Not given A.I. %: 0.32% PC CODE: 097805 CAS NO.: Not given FORMULATION TYPE: Spray PRODUCT APPLICATION RATE(S) g/m ² : 8 fl oz/gal water or equivalent; spray surface until moist but not to point of runoff. ACTIVE INGREDIENT APPLICATION RATE(S)g/m ² : Not given
PROPOSED LABEL MARKETING CLAIMS:	Kills ants

STUDY REVIEW

Purpose:

To determine the efficacy of Black Flag Extreme Home Insect Control (0.02% Deltamethrin) and Black Flag Extreme Home Insect Control Concentrate (0.32% Deltamethrin) when applied as residual applications to ceramic tile for the control of pharaoh ants (*Monomorium pharaonis*).

MATERIALS AND METHODS

Test Location Snell Scientifics, LLC laboratory

Test Material(s):

1. Control – Untreated
2. Black Flag Extreme Home Insect Control (0.02% Deltamethrin), #11084 BX1 63326, EPA Est #82446-TN-1 / #11623-GA-1 / #58996-MO-1, Production Date: March 25, 2011 (Snell Code: 033011-2-B-BLA)
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Test materials 2 and 3 are of interest as both test materials have an a.i .concentration of 0.02% which is the diluted use concentration of the labeled product.

Test Species Name, Life Stage, Sex and Age:

Test System	Strain	Stage/Age	Source
Pharaoh Ants (<i>Monomorium pharaonis</i>)	Field Strain	Workers	Taken from a laboratory acclimated colony that was originally field collected

Describe test containers, chambers and/or apparatus (include site description and location) and how experiment was conducted: Ceramic tiles (4" X 4") were the substrate. After test material application, the substrates were aged for 3, 6, 9, and 12 months under ambient laboratory conditions.

List the treatments including untreated control: 0.02% deltamethrin applied at 1 gal/1000 ft² [1 second spray (4 mL)]

Number of replicates per treatment: 5

Number of individuals per replicate: 10

Length of exposure to treatment (time in seconds, minutes or hours):. The 3 to 12 month ants were exposed for 6 hours and then transferred to clean test arenas.

Were tested specimens transferred to clean containers? Yes

Experimental conditions (state relative humidity, temperature, and photoperiod): 76 °F and 51% RH

Data or endpoints collected/recorded: Alive, knocked down and dead at 30 minutes; 1, 4, and 24 hours

Data analysis: Average % dead

RESULTS

Tables 1-4 show that the 0.02% deltamethrin concentration gave excellent results for all aged substrates. Control morality was acceptable. Raw data were presented.

Table 1.

Pharaoh Ants (<i>Monomorium pharaonis</i>)					
Average % Dead - 3 Months					
Test Substance / Mix Rate:	Pre-trt	30 min	1 hr	4 hr	24 hr
Control - Untreated	0%	0%	0%	0%	0%
Black Flag Extreme Insect Cntrl	0%	100%	100%	100%	100%
0.02% Black Flag Extreme Insect Conc.	0%	100%	100%	100%	100%
Ortho Home Defense Insect Killer	0%	100%	100%	100%	100%

Table 2.

Pharaoh Ants (<i>Monomorium pharaonis</i>)					
Average % Dead - 6 Months					
Test Substance / Mix Rate:	Pre-trt	30 min	1 hr	4 hr	24 hr
Control - Untreated	0%	0%	0%	0%	8%
Black Flag Extreme Insect Cntrl	0%	100%	100%	100%	100%
0.02% Black Flag Extreme Insect Conc.	0%	100%	100%	100%	100%
Ortho Home Defense Insect Killer	0%	100%	100%	100%	100%

Table 3.

Pharaoh Ants (<i>Monomorium pharaonis</i>)					
Average % Dead - 9 Months					
Test Substance / Mix Rate:	Pre-trt	30 min	1 hr	4 hr	24 hr
Control - Untreated	0%	0%	0%	0%	8%
Black Flag Extreme Insect Cntrl	0%	86%	98%	100%	100%
0.02% Black Flag Extreme Insect Conc.	0%	72%	94%	100%	100%
Ortho Home Defense Insect Killer	0%	42%	58%	78%	100%

Table 4.

Pharaoh Ants (<i>Monomorium pharaonis</i>)					
Average % Dead - 12 Months					
Test Substance / Mix Rate:	Pre-trt	30 min	1 hr	4 hr	24 hr
Control - Untreated	0%	0%	0%	0%	2%
Black Flag Extreme Insect Cntrl	0%	100%	100%	100%	100%
0.02% Black Flag Extreme Insect Conc.	0%	96%	98%	100%	100%
Ortho Home Defense Insect Killer	0%	76%	92%	98%	100%

Study Author's Conclusions

The results of the study prove that residual applications of Black Flag Extreme Insect Control (RTU) and 0.02% Black Flag Extreme Insect Concentrate provide similar results, and that both have the ability to provide high levels of pharaoh ant (*Monomorium pharaonis*) mortality following applications to non-porous surfaces (ceramic tile) that are aged for at least 12 months.

Reviewer's Conclusions

This is an acceptable study if a continuous exposure of 6 hours is considered acceptable.

Reviewer's Recommendations

The study supports adding residual control up to 12 months on non-porous surfaces against Pharaoh ants to the label if a continuous exposure of 6 hours is considered acceptable.